

FLIP-TOP CLOSURE

FIELD OF THE INVENTION

The present invention is directed to a flip-top dispensing closure. More particularly, the invention is directed to a flip-top dispensing closure having a pour spout that is open at a region where a base portion is hingedly connected to a cap portion.

BACKGROUND OF THE INVENTION

Many consumer products such as liquid laundry detergent are packaged in containers with flip-top dispensing closures and continue to be popular with consumers.

Typically, flip top closures have round orifices with round plugs that seal the orifice when the top is closed and may have pour spouts that are also round and encircle the round orifice. The sale of such products in containers having flip-top closures has enhanced the consumers experience in the use of many consumer products, thus helping to increase their popularity. However, such conventional flip-top closures can be messy to use and do not pour well with liquids of various viscosities, especially liquids with high viscosity.

While many consumer products come in the form of low viscosity liquids, new forms of consumer products having higher viscosities, such as laundry detergents in the form of gels have also been developed. It is of increasing interest, therefore, to develop a convenient flip-top closure for neatly and efficiently dispensing products such as liquid laundry detergent, as well as other more viscous flowable product forms such as gels.

Other drawbacks associated with conventional flip-top closures are that they often drip as they typically don't have an anti drip lip. Also, the pouring opening is

limited in size in flip-top closures having a pouring spout since the plug for sealing the pouring opening must clear the pour spout in order for the lid to close.

An object of the present invention to provide a flip-top closure that neatly and efficiently dispenses products such as liquid laundry detergent, as well as other more viscous flowable product forms such as gels.

It is another object of the present invention to provide a flip top closure with a pour spout that has a pour opening that is less limited in size due to a sealing plug than current flip top closures having a pour spout.

Other objects of the present invention will become apparent to those skilled in the art by reference to the specification.

ADDITIONAL INFORMATION

Numerous flip-top closures have been disclosed in the patent literature. Such closures are illustrated in Anderson U.S. Pat. No. 6,530,493; Wagner U.S. Pat. No. 6,481,588; Smith et al. U.S. Pat. No. 6,460,712; Randall et al. U.S. Pat. No. 6,382,476; Wilson U.S. Pat. No. 5,271,536; Beck et al. U.S. Pat. No. 4,638,916; Gach U.S. Pat. No. 4,807,769; Odet et al. U.S. Pat. No. 5,141,138; Poore et al. U.S. Pat. No. 4,782,964;

SUMMARY OF THE INVENTION

The objects of the present invention are achieved in a flip-top closure having a pour spout that is less than 360° and an anti drip lip.

In a first aspect, the present invention is directed to a flip-top closure assembly for affixing atop a neck of a container comprising:

- a) a base portion; and

- b) a cap portion that is hingedly connected to the base portion;

wherein the base portion has a peripheral skirt for engagement with the open neck of a container, a floor extending inwardly from atop the skirt and having an opening therein that defines a pour opening, and a pour spout ascending from an inward portion of the floor, wherein the spout extends only partially around the pour opening thereby leaving a portion of the pour opening where there is no spout and wherein the portion of the pour opening where there is no spout being where the cap portion is hingedly connected to the base portion, and wherein the cap portion has an open and close position, a peripheral skirt, a ceiling extending inwardly from atop of the skirt, and a cylindrical rim extending downward from the ceiling, wherein the rim forms a seal with the base portion floor when the cap is in a close position.

In a second aspect, the present invention is directed to the flip-top closure of the first aspect incorporated into a container containing a flowable product.

All numerical ranges and percentages in this specification and claims are intended to be modified by the term about.

As used herein, the term "comprising" means that a specified material or element is present, optionally together a further material or element, and includes including, made up of, composed of, consisting and/or consisting essentially of.

For a more complete understanding of the above and other features and advantages of the invention, reference should be made to the following detailed description of preferred embodiments and to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a perspective view of a flip-top closure according to the invention with the cap in a closed position.

Figure 2 is a perspective view of a flip-top closure according to the invention with the cap in an open position.

Figure 3 is a cross-section view along lines 3-3 of Figure 2 of a flip-top closure according to the invention.

Figure 4 is a perspective view of a container with a flip-top closure according to the invention.

DETAILED DESCRIPTION OF THE INVENTION

Referring now particularly to the drawings, a flip-top closure of the invention will be described with respect to a specific embodiment.

Flip-top closure 14 includes a base portion 40 and a cap portion 60. The base portion includes peripheral skirt 42, floor 44, and pour spout 46. Cap portion 60 includes peripheral skirt 62, ceiling 64, and cylindrical rim 66.

Cap portion 60 is hingedly connected to base portion 40 by mean of hinge 80. Preferably, hinge 80 is integrally formed with base portion 40 and cap portion 60 in a unitary structure. The illustrated living hinge is a conventional type described in U.S. Pat. No. 5,271,536, the disclosure of which is incorporated by reference herein. Other hinge structures may be employed, including a snap-action hinge as described in U.S. Pat. No. 4,403,712, the disclosure of which is incorporated by reference herein.

Floor 44 of base portion 40 extends inwardly from the top of peripheral skirt 42. Floor 44 has an opening that defines a pour opening 50. Pour spout 46 ascends from an inward portion of the floor 44. Pour spout 46 is a partial pour spout meaning that spout 46 does not completely encircle the pour opening 50 in floor 44. Accordingly, pour spout 46 has an open region 52. Open region 52 is in the region where the cap

portion 60 is hingedly connected to the base portion 40. As a result, the pour spout 46 extends around the edge of pour opening 50 less than 360° . Preferably, the pour spout extends around the edge of pour opening 50 less than 300° , and more preferably less than 270° , and even more preferably less than 240° . Additionally, pour spout 46 has an anti-drip lip 56. The open region 52 in spout 46 enables the flip top closure of the present invention to have a larger pour opening with a spout as the open region enables the cylindrical rim 66 on the cap to have enough clearance for the cap to close. Without this opening, the size of the pour opening and spout would be more limited as the cylindrical rim would not clear the spout in the region where the cap portion and base portion are hinged, thereby interfering with placing the cap in the closed position.

Cap portion 60 is adapted to be moved between an open position (as illustrated in Figure 2) and a close position (as illustrated in Figure 1) in which the cap portion 60 is sealingly engaged with the base portion 40. The cap portion 60 has a peripheral skirt 62, a ceiling 64 extending inwardly from the top of peripheral skirt 62, and a cylindrical rim 66 extending downward from the ceiling 64. Cylindrical rim 66 is sized accordingly so that it fits securely within pour opening 50 in floor 44, such that the cylindrical rim 66 acts as a plug and forms a releasable seal with floor 44. The seal is formed with the base floor 44 and is formed inward of the pour spout 46. Accordingly, when the cap is closed the pour spout is outward of the cylindrical rim that forms the releasable seal with the base floor 44. Preferably, cylindrical rim 66 is sized such that it also touches the inside surface 54 of the pour spout 46 as cap portion 60 is moved from the open position to the closed position. This enables the cylindrical rim 66 to sweep the inside surface 54 of the pour spout 46, thereby cleaning the pour spout when the cap portion 60 is moved into the closed position.

The cap portion may have a second cylindrical rim (not shown) extending downwardly from the ceiling 64 that is between the cylindrical rim 66 and the peripheral skirt 62. This second rim may be positioned so that the spout 46 fits snugly between the first cylindrical rim 66 and the second cylindrical rim, such that it assist in keeping the cap in the closed position. In this embodiment, a greater lift force may be needed

to open the cap. This can be useful to prevent the bottle from opening accidentally and spilling the contents of the bottle or making the bottle more difficult to open as may be desired for a child-proof embodiment. The second cylindrical rim need not be a complete cylinder, but can simply be a clip portion that is positioned to embrace the spout.

It will be appreciated that while the floor 44 of the base portion is described as extending inwardly from the top of peripheral skirt 42, the floor 44 may extend inwardly from any portion, not necessarily the top, of peripheral skirt 42 such as midway up peripheral skirt 42. Likewise, the ceiling 64 of the cap portion is described as extending inwardly from the top of peripheral skirt 62. However, the ceiling may extend inwardly from any portion, not necessarily the top, of peripheral skirt 62.

Referring now to Figure 4, package 10 comprises a container 12 and flip-top closure 14. Container 12 includes a container body 16 and an upper end with a cylindrical neck 18 which includes finish 20 at its upper end.

The base portion is adapted for engagement with the finish 20 of the neck of the container. The cylindrical neck 18 of container 12 may be threaded with external thread 22 to mate with internal thread 48 (as shown in Figure 3) on peripheral skirt 42. Alternatively, the flip-top closure 14 may engage the cylindrical neck of the container by other known means such as by snap-on means.

Base portion 40, cap portion 60 and hinge 80 are preferably injection molded from a thermoplastic material compatible with the container material and contents.

Container 12 and flip-top closure 14 may be mono-layer or multi-layer and may be made of HDPE, PP, PVC, PET, POLYCARBONATE or acrylic or nitrite base resins, and preferably contains a minimum of 25% PCR.

It should be understood of course that the specific forms of the invention herein illustrated and described are intended to be representative only as certain changes may be made therein without departing from the clear teachings of the disclosure. Accordingly, reference should be made to the following appended claims in determining the full scope of the invention.